



MAGAZINE

PRICE TWOPENCE

DECEMBER 1953

Incipit ysaias MA propheta.



The *I.C.I. Magazine* is published for the interest of all who work in I.C.I., and its contents are contributed largely by people in I.C.I. It is edited by Richard Keane and printed at The Kynoch Press, Birmingham, and is published every month by Imperial Chemical Industries Limited, Imperial Chemical House, S.W.1. Telephone: VICToria 4486. The editor is glad to consider articles for publication, and payment will be made for those accepted.

CONTENTS

The Key to Plenty, by the Editor	354
Wildfowling on the Mersey, by William Wright	358
Information Notes No. 92	361
The Lambeth Bible, by C. R. Dodwell	365
Holiday Photographic Competition Results	370
I.C.I. News	373
The Kick, by Samuel Thomas	381

FRONT COVER: Opening initial V to the Book of Isaiah in the 800-year-old Lambeth Bible. The initial represents the martyrdom of Isaiah, who according to tradition (for which there is no evidence in the Bible) died by being sawn in half at the order of King Manasses, King of Jerusalem.

OUR CONTRIBUTORS

C. R. DODWELL is librarian of Lambeth Palace. He was a fellow of Caius College, Cambridge, and senior fellow of London University before taking up his present appointment this year.

SAMUEL THOMAS works in the unfinished fasteners stockroom at the Glasnat Lightning Fastener works at Swansea. He was educated at Harlech College and Swansea University, and was at one time a colliery manager's clerk.

WILLIAM WRIGHT is senior chauffeur at Castner-Kellner Works, General Chemicals Division. A keen wildfowler, he spends much of his time on the Mersey estuary. When he is not shooting you will find him enjoying a quiet spot of angling. He is treasurer of the Castner-Kellner Angling Society.

THE KEY TO PLENTY

Fine Results Achieved by I.C.I. Work Study Schemes

By the Editor

Thirty per cent of our workers drawing bigger pay packets from payment by results under Work Study schemes—millions of pounds of capital expenditure saved due to better planning of work and increased output from the same resources—these are the highlights of the impressive results to which I.C.I. Work Study has led.

LAST October at Buxton a truly remarkable chemical conference took place. It was initiated and organised by the Association of British Chemical Manufacturers, and the object was to hear what I.C.I. had to say on the subject of Work Study.

There were over 500 leaders of industry there, among them Sir Harry Pilkington, chairman of the Federation of British Industries, Mr. C. G. Hayman, chairman of the A.B.C.M., and Sir Thomas Hutton, director of the British Productivity Council. When they left there was not a shadow of doubt about their enthusiasm for what they had been told and the way they were told it. As one important visitor put it: "I came expecting to be bored; I go away excited and disturbed."

The very fact of the conference emphasises—if emphasis were needed—the leading position occupied by I.C.I. today in the field of Work Study. Moreover, it is without precedent that one firm should put at the disposal of its competitors "know-how" gained over years of experience and endeavour.

And just what is it that I.C.I. have to be proud of? Briefly, this. Thirty per cent. of our workers—21,000 of them—are today paid not by plain time, but by results under schemes of carefully planned and measured work which give a much higher output and higher earnings.

Measuring work is not new. But what is new is the extent to which it has been adopted in I.C.I.—extending far beyond repetitive work and even embracing complicated jobs of engineering maintenance and repair. Notable, too, is the harmonious manner in which these schemes are working.

It is no secret that since these schemes started not only have millions more been paid out in wages, but millions

have been saved by the Company, both for investment in new projects and for passing on to the consumer in the shape of relatively lower prices for our products. This policy enabled the Company last year to keep its sales index down to the remarkable figure of 192 (1938 = 100) when the wage index rose to 250 and the index for raw materials bought by I.C.I. to 398.

The Buxton conference was organised to tell others what we are doing in Work Study, and in this respect to implement one of the chief recommendations of the productivity team that reported on the American heavy chemical industry under the leadership of Mr. Grange Moore of I.C.I.

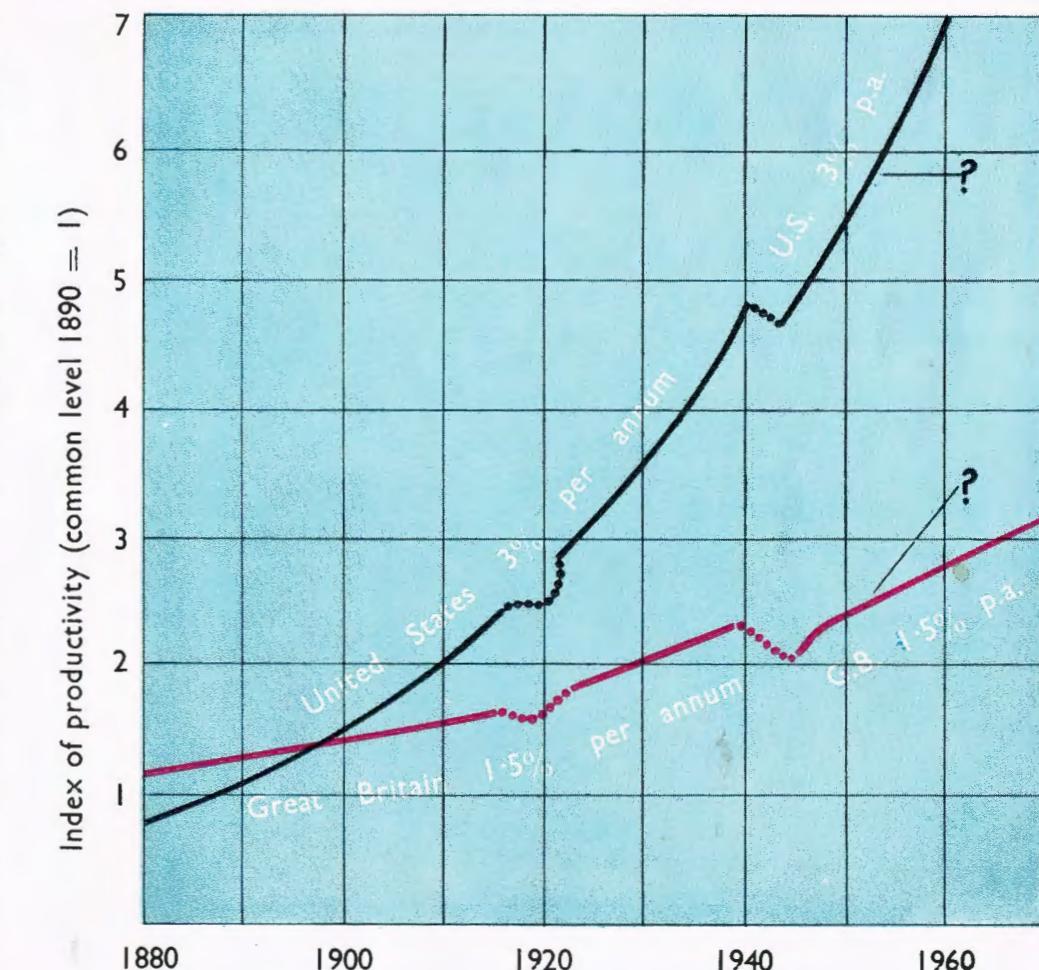
The conference was a two-day affair, the first day being occupied with lectures and the second with discussion groups. Leading figures of the Company there included the Chairman, Dr. Fleck; the Personnel Director, Mr. Banks; the Technical Director, Sir Ewart Smith; the Metals and Nobel Divisions Director, Dr. Taylor; and

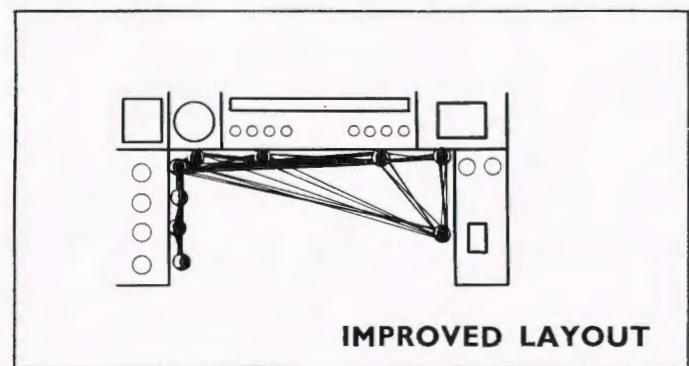
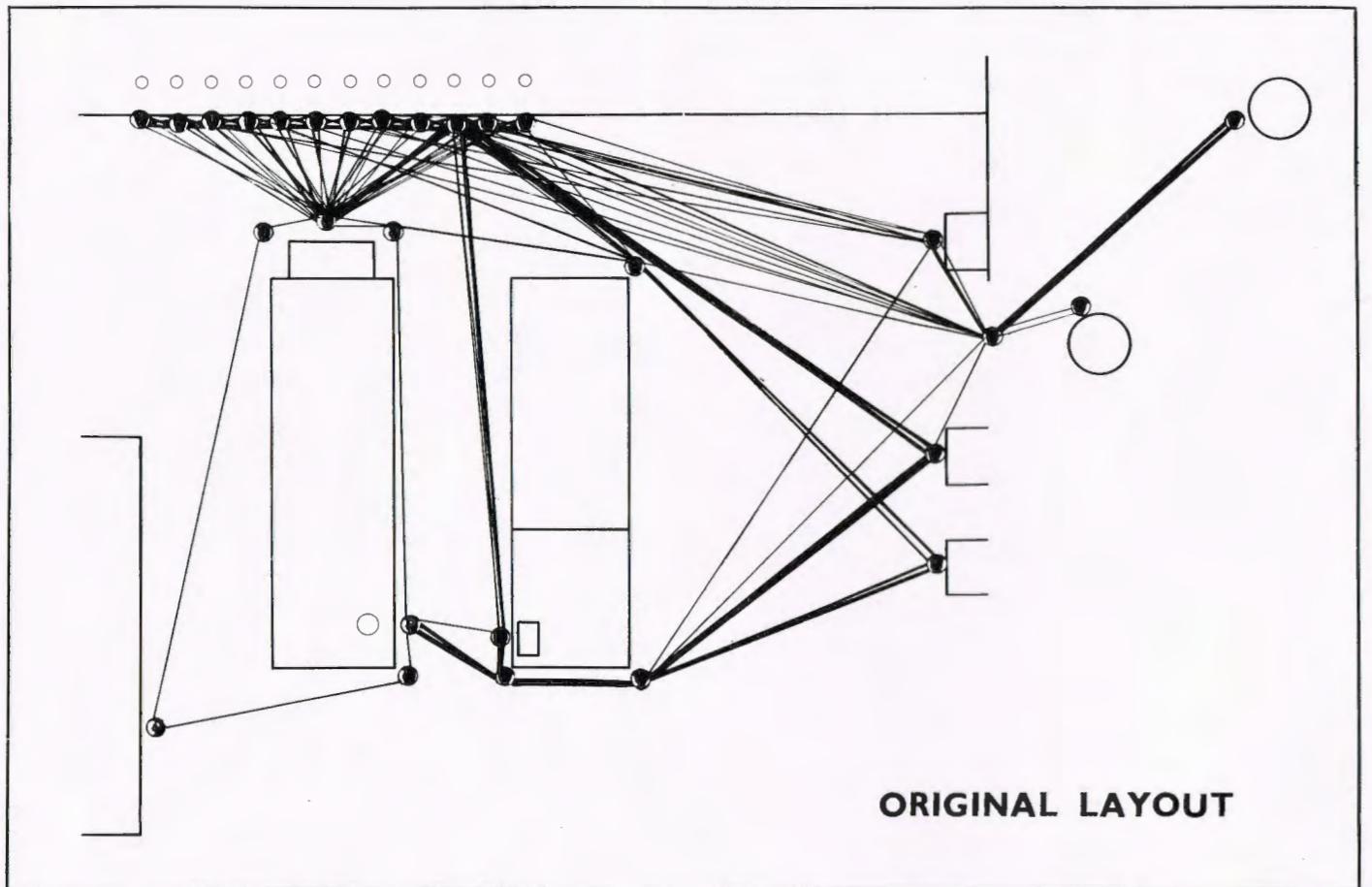
the Commercial Director, Mr. Worboys. One of the main lessons of the conference was the tremendous amount of thought and care with which this problem of productivity has been tackled in the name of Work Study.

Why is it, asked Mr. Currie in one of the early lectures, that the productivity of the American worker is two or three times that of the British? Is it due to any natural advantages possessed by the Americans, or to superiority in workmanship or technique? To both these queries Mr. Currie gave a firm no. But one reason for the high level of American productivity is the fact that, for fifty years or so, they have consistently saved proportionately more than Britain from current production to plough back for the development and expansion of plant and equipment.

A Tell-tale Graph

It was about 1900 that Britain and America began to diverge in this respect, that American productivity began to rise relatively to our own. The difference in the rate of increase was small—1½%. But compounded over fifty years the result is formidable: more power for the worker





AN EXAMPLE OF A JOB REPLANNED AND SIMPLIFIED BY METHOD STUDY. The upper chart shows the original layout and the lower one the improved layout: both are to the same scale. The various items of laboratory equipment needed for the job are indicated by rectangles and circles.

These charts are known technically as "string diagrams" because they are put together with string and pins. For every move from point to point made by a worker in the course of a job a piece of string is stretched from pin to pin. Thus the amount of walking involved in a job is accurately recorded. In this case the distance travelled by a girl working on the routine testing of chemicals was reduced from 5060 ft. to 416 ft., and a lot of laboratory space was freed for other work.

—more machinery at his elbow—and therefore greater effectiveness for each hour of work. In this respect there is one tell-tale graph—the industrial consumption of electricity. Since 1930 the American graph has soared away over our own.

Britain, as so often has been said, is the workshop of the world. We live on the conversion margin—converting raw materials, most of them imported, into something which other people want and in return for which we get our food. If therefore we wish to improve our standard of living, it is essential to raise our productive efficiency to a level no less than that of our chief competitors.

How is this problem of higher productivity to be

tackled? The short-term answer offered by Work Study is:

1. Improve operating methods.
2. Improve the planning of work.
3. Increase the effectiveness of all employees.

In order to understand the contribution which Work Study makes it is necessary to have some knowledge of just what this new technique in the hands of management is and how it has grown up.

Work Study—which means simply the study of work—is a post-war name for something that has emerged only gradually, with considerable growing pains, to its present stage of development. The first pioneer may be said to have been F. Taylor, who worked his way up in a

steelworks from an ordinary labourer to become chief engineer at the age of 31.

Taylor is remembered chiefly for his work on Time Study—in other words, the timing of jobs and the study of how long they should take. About the beginning of this century he made a number of studies of the time needed to do a particular job, breaking down overall time into separate times for each particular movement, however small. To this breakdown of the overall time he gave the name "elements," a word still used in Work Study today.

Taylor's work was developed further by the Gilbreths. Gilbreth was a man who started life as a bricklayer and eventually became a successful contractor. His wife was a trained psychologist. Together man and wife pooled their separate experiences to study what is today called the productivity problem. They were a devoted married couple who had a family of twelve children, whose adventures are told in the best-seller called *Cheaper by the Dozen*, written by two of the children, Frank and Ernestine Gilbreth.

The particular contribution for which the Gilbreths are famous is their close analysis of the motions or movements made by a manual worker.

The Gilbreth idea was that all movement of work could be broken down into a few elementary motions repeated over and over again. Variety lay not in the number of elemental motions but in the different combination of these for different jobs. They argued that there were only seventeen of these elements, and they gave them the name Therbligs (which is simply Gilbreth written backwards). Most of them are motions of the hands; but some were absence of movement—in other words pause—and some mental reactions.

A Famous Study

One of their most famous studies was of the motions of a bricklayer laying bricks. They showed how, without demanding greatly increased effort, output could be trebled by economy of movement and by having tools and materials in the right place at the right time.

These in brief outline are the two most famous pioneering efforts behind Work Study—pioneering efforts with a chequered career, but nevertheless struggling up the road of more output from an hour's work, which means, eventually, more goods for the community to distribute and a higher standard of living for all.

The Work Study of today is a sensitive and adaptable technique with its own particular terminology, or—to put it more irreverently—jargon. But the jargon has its uses, because it means that the specialists know just what they are talking about and are able to give the words they use very precise meanings.

Dispensing with this cumbersome and sometimes ugly

language at the risk of a little inaccuracy, Work Study may be said to ask two main questions:

1. How should the job best be done?
2. How long should it take?

The answer to the first of these questions is covered by a technique called Method Study. In order to get methods right, the way in which a job is done is systematically and carefully recorded. This record may be in one of many forms, including charts, diagrams, or even occasionally films. Every part of this record is then examined thoroughly and with an open mind.

Very thorough questioning is carried out for each bit of the work: "What is done?", "Where is it done?", "When is it done?", "Who does it?" and "How is it done?" For each answer a further question is asked: "Why is this so?" As a result of this searching examination the best method for doing the job can be built up. One of the essential features of this procedure is that the method finally decided upon results in a job which a man can fairly be asked to do—a job with a satisfactory quality of workmanship and one which meets stringent safety requirements.

A close scrutiny of what actually goes on in a job—often so different from what management thinks goes on—usually leads to considerable increases in output from existing resources, be the job large or small. Moreover, the approach results not only in the better use of manpower but also in savings in plant and raw materials.

At Buxton Sir Ewart Smith quoted a case where the construction of a complete factory costing at least £1,000,000 had been postponed for perhaps ten years because an examination of this kind had indicated that the required increase in output could be obtained from the existing plant.

This is one aspect of the long-term planning conducted by means of Method Study. The other relates to the design of new plant. Today it is becoming a practice in I.C.I. for the designers and engineers to call in Work Study specialists at the design stage and consult with them as to the most efficient layout. A given plant can thus be made to produce a higher output per man employed simply by better planning of work.

Following on the heels of Method Study comes the question: What is a fair time for the job to take when simplified in this way? This question is answered by a technique known as Work Measurement. And it is upon the basis of this measurement that incentive schemes are introduced.

Choice of Technique

There are three main techniques of measurement. All of them aim to assess the facts as impartially and as honestly as is humanly possible. The choice of technique depends largely upon whether the work is repetitive or not. If it is

(Continued on page 364)

Wildfowling on the Mersey

By William Wright (General Chemicals Division)

Wildfowling is a tough sport. For William Wright it has meant camping—often in bitter cold weather—on the Saltings of the Mersey estuary, with a chance of duck at the evening and dawn flights. And it is a sport needing experience and caution, for there is always the danger of being caught by the tide.

TWENTY-FOUR hours of bitter cold wintry weather—that is what wildfowling in the Mersey estuary has so often meant for me. But the colder the weather, usually the bigger the bag and the more I have enjoyed it.

Our "drill" is this. We set off for Frodsham Pumps on the Manchester Ship Canal, where we board a dinghy to cross the water. From then on it is Shanks' Pony to the Saltings, about a mile away. As well as coping with con-



START OF THE SHOOT. *The party crosses the Manchester Ship Canal by dinghy.*

358

siderable kit, we have to take turns in humping a cask of water.

The Saltings is a wide expanse of coarse grazing land—indeed many cattle are to be seen dotted here and there—and of course there are plenty of mushrooms if anyone feels inclined to trudge around looking for them: but we are not there to mushroom, and the Saltings to us is where the duck fly in to feed.

Arrived at our chosen spot, we establish camp and then set off to the edge of the mudflats to await the evening flight of the duck coming inland for feeding and the curlew coming in to rest. First, however, is the briefing, when each one is allotted a position out of gun range of the others.

Once on the mudflats I select my site—preferably a small gutter where I can crouch as low as possible, because the birds are exceptionally quick at spotting human beings.

For the evening flight I do not like striking any deeper into the mudflats than I need. I prefer to stay around the gutters on the edge, leaving the long trek out for the morning, as from way out on the flats the return journey in the dark is not a pleasant one.



DAWN FLIGHT BEGINS. *The author, standing in a gully of the Mersey estuary, about to take a shot.*

Should a storm blow up, then the danger of getting caught by the tide would be pretty bad. There would be a tendency to panic, especially if tiredness forced you to stop to rest. I could best describe it as rather like being lost on a mountain with a heavy mist coming down.

Crouched in the small gutter as dusk gradually closes in I watch and listen intently for the sound of the duck flying in. Perhaps none are seen; then again perhaps all that I hear is a shot from another member of the party. Always I wait, straining to pick up the first sight and the first whirr of wings as the duck sweep inland to the Saltings.

At a prearranged signal, when it is too dark to see, we meet and start the trek back to base, where a fire is kindled and a meal and brew quickly made ready. Having had our meal it is time to settle down for the night, and we try to make ourselves as comfortable as possible.

The harder the weather the better the shooting, so midwinter is usually the best time for wildfowling. Many

times I have been up to my waist in mud and water: I have been so cold that my teeth were chattering, but when the duck are seen or heard, all this is forgotten—the spirit of sport warms you very quickly.

To catch the morning flight, that is when the duck fly from the Saltings to the river, we get ready an hour and a half to two hours before dawn. Another quick brew, and the long trek begins.

This time my venue is perhaps the river edge across the mudflats down the Hoole Pool gutter, out in the deep channels. The Hoole Pool gutter is notorious for its mud, and as each step is taken I sink down to the knees—and sometimes deeper! By the time the selected position is reached a rest is not only indicated but necessary—it was in this gutter that a friend and I had to struggle until exhausted to reach safe ground and were lucky to lose only our thigh-boots.

Again comes the tense period of waiting, this time for the first sign of dawn, for the duck fly out at first light. The Hoole Pool gutter is an excellent "spec" because with

HOMEWARD WITH THE BAG *after dawn*

the duck coming up and over they present a perfect target; should the weather be really hard they will seek shelter in the gutter. Much depends on the weather. If it is a mild day the morning flight will be over in half an hour or less, but if it is a good hard and frosty morning it could last almost indefinitely.

So much then for duck shooting. Now a word on geese. Geese generally come in large numbers some time in November and stay around until the end of the season

BREW-UP IN THE OPEN. *The wildfowlers breakfast after the morning flight.*

in February. The species chiefly seen in this area are white-fronted and they weigh between 5 and 8 lb. Their habits are very similar to duck in feeding and flighting, but they are more cunning.

I find the best time to shoot geese is when there is a moon slightly overcast. You can see them quite clearly and they are unaware of your presence. You hear them first—a skein of geese, perhaps 20 or 30 in a skein—flying anything from 30 to 35 yards up. This is the moment when excitement reaches its peak.

The 1952-3 season was exceptionally good for geese, and one night we took eight with two guns in three to four hours' moonlight shooting.

I and my friends have had several nasty experiences on the marsh, most of them caused by the weather. Fog is the worst enemy. I remember once I took a friend out on his first expedition. So keen was my friend to get out on to the river bed for the morning flight that the possibility of fog was ignored. Then when we were well out, the fog came down heavily. With visibility down to a few yards it would have been madness to go deeper into the mudflats. Luckily we were just able to retrace our footsteps, although these were fast disappearing. To a laymen's eye the marsh may not appear to be unfriendly, but there are many gullies running and twisting through it that could be the grave of anyone unaware of the dangers.

Once the sun gets well up, hope of more duck is usually given up and we trek back to base to cook breakfast and clean up our thighboots and oilskins. After loading up all the kit and equipment, it's back to the boat and so to home bearing the bag. Sometimes the bag has been nothing at all, sometimes almost more than we could carry. The best bag I can remember was 2 mallard, 5 widgeon and 7 teal.

One last word. Perhaps someone who reads this article may be tempted to try their luck on the Mersey estuary. To anyone so disposed I would give a serious warning not to venture out unless accompanied by an experienced wildfowler.

Information Notes

'ARDIL' GOES AHEAD

By F. J. Moore (Nobel Division)

It is now two years since the Dumfries factory began making 'Ardil.' Today many people are using 'Ardil' without knowing it—in blankets and carpets, in suits and children's clothes. Here is an account of the footing that 'Ardil' has won to date in the textile world.

'ARDIL,' the new staple fibre made from protein residue of groundnuts from which the oil has been extracted for margarine-making, has now been in bulk production for over two years and is beginning to find an established place in the textile industry. Although the factory at Dumfries is not up to full production, it is hoped that by the end of 1954 the annual output will amount to several thousand tons. The whole of the output is in the form of staple and is used for blending with other fibres.

'Ardil' owes its existence to the chemists' search for an artificial protein fibre from an abundant raw material source, and thus is closely related to the natural protein fibres such as angora, cashmere, mohair, vicuna, silk and wool. The advantages of a protein fibre are its warmth, handle, and ease of dyeing and working on textile machinery.

The last B.I.F. exhibition of 'Ardil' at Earls Court was designed to show the versatility of 'Ardil' for blends, and well over 200 fabrics made by the trade were shown. Many think the blended fabric—containing more than one kind of fibre—is the design of the future. The combination of properties made possible by using more than one fibre allows the designer to produce greater and more pleasing variations.

Six months later the progress of 'Ardil' was again demonstrated when the fabric fair and fashion parade was held in the Royal Festival Hall in October. The 'Ardil' display was confined to cloths in commercial production and the results were extremely encouraging. Thirty manufacturers provided pattern lengths, and almost all the patterns shown were available in a range of colours. A comprehensive range of blended fabrics was shown, including coatings, suitings, barathea, dress cloths, gaberdines, Bedford cords and velours. The blends covered mixtures of 'Ardil' with silk, wool, cotton, viscose and nylon. A spring coat in 'Ardil'-viscose and an afternoon dress in 'Ardil'-wool were featured as new fabrics in the mannequin parade. These garments will be travelling with the whole display throughout stores in Australia and New Zealand.

The demand for blending with 'Ardil' is principally of three kinds:

1. As a diluent for wool, where 'Ardil' can reduce the cost of the mixture without loss of quality;
2. In mixture with cotton or viscose, where 'Ardil' gives an attractive, warm, silky feel; and
3. As a blend with other artificial fibres, where the merit of 'Ardil' is to give a soft, warm handle and absorbency.

Of the woollen blends one of the most important outlets is the carpet trade, and six large carpet firms are very interested in 'Ardil.' Wearer tests covering years of hard use have shown carpets containing 'Ardil' fibre to be quite as good as all-wool carpets. At least two firms have got past the experimental stage in producing carpets with an all-artificial pile. This type could be sold at a price 30% cheaper than the equivalent all-wool variety, and if the wear-trials finish up as well as they are going at present, a considerable demand is expected. For the last two years all new carpets purchased by I.C.I. for their offices have been in 'Ardil' fibre blends, and the results have been very encouraging.

A genuine Witney blanket containing 'Ardil' fibre with wool and viscose is now being produced in considerable quantities and is on sale in retail stores.

The worsted trade is more exacting and the mechanical processes involved throw severe strains on the fibres—even wool suffers considerable damage. 'Ardil' fibre dyed en masse before spinning has given one answer to this problem and five shades of staple are now available which are proving acceptable to the worsted industry, since they stand up to the mechanical processing well and have the additional advantage of requiring no further dyeing. No great weight of material is yet in process, but without doubt there will be a considerable demand for this type of fibre.

In Lancashire a new field is being opened. Mixed with cotton or rayon 'Ardil' can produce new fabrics at interesting



A recent display of the many textiles in which 'Ardil' is blended

prices. Lancashire is looking for new work and can spin more cheaply than Yorkshire. The yarns will probably be woven at first on the broad looms of Yorkshire. Three-way blends containing 'Ardil'-viscose-nylon or 'Ardil'-viscose-wool are coming out of the experimental stage to produce light worsted fabrics, which are expected to sell 30% cheaper than their all wool equivalent but have even better wearing qualities.

Simple blends of 'Ardil' and cotton are becoming of increasing interest to produce light fabrics for sports shirts, dress fabrics and children's clothes. In fact, a company has been formed by several manufacturers to spin, weave and make up such material. Sports shirts for home and export trade are now being made on a considerable scale by a Carlisle firm, and an important manufacturer in Northern Ireland has got 'Ardil' and viscose into commercial production.

Then, too, within our own company the use of 'Ardil' is increasing. Nobel Division are using bulk quantities of 'Ardil'-cotton blends for the outer covering of safety fuse and detona-

tor lead-wires. The new yarns are proving very satisfactory and easy to use.

The work involved in introducing a new textile fibre is very complex. Only a few worsted or cotton firms in this country are organised vertically, and it is quite common for our product to pass through six different hands before the blended cloth reaches the public. The task has been simpler with the woollen trade, which is in itself a shorter process, since most woollen firms spin, weave, dye and finish in one mill.

Useful business is building up in certain overseas markets which have been selected, and 'Ardil' is being sold by the ton in Egypt, Belgium and Eire. Development work now in progress in Austria, France and Holland also looks quite promising.

In conclusion, it is fair to point out that 'Ardil' represents the type of business venture that Britain requires. A cheap raw material is imported, and by the scientific skill of one company a product of high value is produced which can be used for export, thus helping to improve our balance of trade.

FISHING IN THE INDIAN HILLS

By Henry Buckley (Khewra Soda Co.)

Four days fishing in the upper reaches of the Kunhar river in Pakistan was a successful expedition for two I.C.I. men from the Khewra Soda Company. Five rainbow trout over 5 lb. and one brown trout over 6 lb., not to mention a lot of smaller ones, were caught.

A WAY from the heat of the burning Punjab plains, the Kunhar river, swift-flowing and icy cold, carries down the melted snows of the high mountains to water the sunbaked lands below. The trout of this river are often spoken of in places where anglers meet, so Jack Beswick and I decided that before leaving Pakistan we would try our hand among these trout, to learn how true were the tales we had heard.

The Director of the Pakistan Travel Bureau did all in his power to make the trip a success. His department hired a jeep to take us over a never-to-be-forgotten road, where the smallest slip could have sent us hurtling 2000 ft. into the river below. For thousands of years this road was used only by pack animals, but in 1950 it was opened up to jeeps—a very dangerous way to travel, but much faster than pony.

We settled our base at Naran in the rest bungalows belonging to the Pakistan Forest Department. No radios, telephones or electricity have so far been introduced into the Kaghan valley, so we could forget the world for four days.

The path we followed along the river was not easy. Many rocks had to be climbed and at one place we met a narrow bridge with no handrails: the whole structure swayed with each step and needed more than ordinary care to cross.

Our first day yielded ten fish—all trout, but not one over a couple of pounds. However, we had enough fish to make a good dinner, with some over for breakfast, and we were well satisfied with life. The second day's fishing brought in many more fish, but as the rules were that no fish under 12 in. long might be taken we turned all back but ten—a little disappointed that the larger fish were still eluding us.

On the third day Jack Beswick decided he would climb to Saiful Maluk Lake, some 1500 ft. above sea level, and try his hand at catching one of the large rainbow trout that were supposed to live there. I decided on fishing the right bank of the river, and after trekking five miles upstream I began fishing down, making my way gradually back to base camp. I landed five fish over 12 in. and many smaller fry.

My companion returned with another five fish, larger than the ones from the river but still not the big chaps we had dreamed of. We gave the cook enough for breakfast and dinner, and gutted the rest of the catch and placed them on frozen snow to keep for our return journey. We well knew that if we did not produce fish, the Winnington Club members would rag us well and truly about our fruitless expedition.

The morning of our fourth and final day's fishing arrived,

and we both set out for the lake of Saiful Maluk. The way led over fast-flowing mountain streams and thickly wooded areas of fir trees. The higher one went the steeper the track became; breathing was more difficult as the mountain air became more rarefied. The mountain pony I had hired to ride soon became exhausted and refused to take me any further.

After three hours of hard walking and climbing we eventually came to a valley in the centre of which lay the quiet waters of a beautiful lake, with snow-capped peaks towering all around. Hundreds of species of wild and cultivated flowers common to the fields and gardens of England grew in profusion, and a herd of cattle very like Guernsey cows grazed in quiet contentment. A peculiar silence rested over the whole valley, and one felt that the world was at rest.

This was our lucky day. The large trout we had dreamed of catching were there. Some of them fought bravely before being landed. Our bag was five fish all over 5 lb., including one brown trout of 6 lb.—not to mention several smaller ones which, had they been caught at home, would have made news.

A hillman appeared on the lakeside just as we were preparing to return to Naran and offered to carry the catch. This offer was willingly accepted—the first time in our lives we had employed anyone to carry the catch home!

At Naran we decided to keep the five fish over 5 lb. and dispose of the rest to anyone who liked them. As it happened, the Fathers and pupils of Burnhall Catholic Mission School, Abbottabad, were on trek along the valley and had halted at Naran for the night, so some of our surplus catch was disposed of for the boys' Friday morning breakfast. The five large trout were placed in a wooden packing case and frozen snow was packed round each fish.

On Saturday, 15th August, we left Abbottabad for Khewra. Calling at Rawalpindi for lunch, we had the pleasure of hearing an American say "If those fish were in the States or England they would be stuffed and placed inside glass display cases." More ice was bought in Rawalpindi, and just at sundown Khewra was reached, with the fish lovely and fresh. After dinner, fish were sent round to the various club members' bungalows, and when we eventually reached the club the cry of "Where is the fish?" was answered with "Have a look in your frig.!"

Next morning, after breakfast, all declared it was the best fish they had ever eaten, and many believe it was salmon, and not rainbow trout, we had caught on our very enjoyable holiday.

THE KEY TO PLENTY (*continued from page 357*)

- repetitive, a technique known as Time Study is used. The main principles of this technique are as follows:
1. The job is broken down into "elements," in other words, small parts, usually of less than a minute.
 2. Broken down into "elements," the job is then timed by trained Work Study officers, who simultaneously assess the effectiveness of the work they are timing.
 3. These observations are then repeated—sometimes hundreds of times—until the Work Study officer is satisfied that he has a fair and representative picture of how long the average man takes to do the job properly, with adequate allowance for rest.

This in rough outline is the technique applicable to repetitive work only.

Now, one of the chief contributions made by I.C.I. in the field of Work Study has been the introduction of measured work to jobs that are not purely repetitive. The method by which this has been done is ingenious. There are roughly two techniques, one being what is called "synthesis from standard data," the other "analytical estimating."

The first of these rather formidable phrases is applied to jobs which, while not repetitive in themselves, nevertheless contain parts or elements which are repetitive and to which standard times can be given. These parts or elements are then synthesised or put together and thereby a measured time for non-repetitive work can be obtained.

The establishment of these so-called "standard data" is proving a long, laborious and painstaking job. But it is undoubtedly worth while.

The third technique of Work Measurement—analytical estimating—is applicable to jobs where at present there are no standard data available. It is used principally to cover work of engineering maintenance and repair.

The technique is simply that an estimator—usually himself a skilled craftsman—analyses the job to be undertaken and estimates the time to be allowed. This technique has proved in practice remarkably successful, chiefly because great care is always taken to see that the estimator knows his job.

Answers on page 380

(A) WHO SAID?

1. "The English weather has been very nice and warm, but cold at times."
2. "Nothing has yet been contrived by man by which so much happiness has been produced as a good tavern."
3. "Painting today is pure intuition and luck, and taking advantage of what happens when you splash the stuff down."
4. "I don't see so much of Alfred any more since he got so interested in sex."
5. "To travel hopefully is a better thing than to arrive."

OUR CHRISTMAS QUIZ

(B) WHO ARE OR WERE THE OWNERS OF THESE NICKNAMES?

- (1) Plum, (2) Shakes, (3) Shrimp, (4) Jumbo, (5) Bosie, (6) Khaki, (7) The Tiger, (8) The Beaver.

(C) WHO ARE OR WERE?

- (1) Harry the Horse, (2) Brer Rabbit, (3) Peter Rabbit, (4) Augustus Hare, (5) Sitting Bull, (6) Flying Fox.

(D) COMPLETE THE FOLLOWING:

- (1) Ross and —, (2) — and Cressida, (3) — and Freebody, (4) Scylla and —, (5) Cohn and —, (6) Arms and the —, (7) — and Sensibility, (8) — and Allen, (9) Allen and —.

To this approach in industry Work Study makes a notable contribution.

Whichever of these three techniques is used, the result is that a proper knowledge of how long a job should take is obtained. This then forms the basis of a fair incentive scheme, thousands of which are in operation in I.C.I. today.

At Buxton Sir Ewart Smith quoted the case where, in a very large workshop, this approach had made possible an increase in output of 16% and thereby postponed expensive capital extensions. There was, he said, at the same time a reduction of 23% in the labour force, and the manpower so saved was fully re-employed on the construction and maintenance of new plants. Those remaining in the workshop received increased earnings—in some cases up to 30% or 40% higher.

Many other striking examples of successful Work Study schemes could be quoted. They range from process work, maintenance and construction to gardening and window-cleaning.

And what is the result of this vast and complicated programme of measured work in I.C.I. today? The practical evidence of its success is undoubtedly the very much higher pay packets which so many are taking home. But there is a very much wider picture than this. Whereas before the war the Company's index of productive efficiency was rising by about 2% per annum, since the war it has risen by an average of 7% per annum. Undoubtedly Work Study has been a big factor in this impressive result.

A third and less tangible reflection of the success of Work Study is the obvious pride in the job which so many people are able to find in measured work, laid out to the best advantage by Method Study.

"A human being," said Mr. Currie at Buxton, "has two prime motivations. One is the hope of gaining something; the other is the fear of losing something. Surely there can be few people left in British industry who have any real interest in taking advantage of fear, the motivation which draws its power from such horrors as mass unemployment. Rather let us consider what all of us, great or humble, hope to gain from life."

To this approach in industry Work Study makes a notable contribution.

The Lambeth Bible

By C. R. Dodwell

Scarcely more than 300 yards from Imperial Chemical House, London, lies one of the most treasured of the nation's possessions—the 800-year-old Lambeth Bible. Here, for Christmas, are reproduced some of the bible's fabulous illuminations, with text and explanation by the Palace Librarian.

Reproductions by kind permission of His Grace The Archbishop of Canterbury and the Church Commissioners

THE Lambeth Bible is so called because it belongs to Lambeth Palace Library, where it is numbered MS 3. It was written and illustrated probably at Canterbury about the middle of the twelfth century—almost 100 years after the Norman Conquest—and is one of the most celebrated examples of English art of that period. It is 800 years old.

Beyond these simple facts practically nothing is known about the Bible, except that its second volume—now a mutilated wreck of its former self with most of the illustrations torn out—was in the sixteenth century in the hands of the Colyar family, who lived near Maidstone, before going to its present home at the Maidstone Museum.

A very large and heavy manuscript, the Lambeth Bible—by no means the only giant illuminated Bible of the twelfth century—is about seven inches thick. The pages are about 20 in. by 13 in., so that one of the Bible's full-page illustrations could easily be framed and hung as a picture. The reproductions on pp. 367-9 are about half the original page height.

In medieval times manuscript illumination was a recognised art, closely associated with other contemporary work. The figure style for the Lambeth Bible, for example, is similar to that of a wall painting of St. Paul and the viper, which has miraculously survived at Canterbury Cathedral and is also related to a portrayal of the Last Judgment on an enamel plaque in the Victoria and Albert Museum.

Moreover these illuminated manuscripts are today all the more prized as examples of the richness of English medieval art, since accessible forms of art, such as sculpture, metalwork and wall paintings, were ruthlessly destroyed during the Reformation and Civil Wars.

The Lambeth Bible exemplifies the development of what is called the Romanesque style. The latter was a general European style, which became prevalent in England in the first half of the twelfth century. It was not concerned with naturalism but rather with abstract forms.

A glance at the reproductions will show that the artist was not interested in the realistic portrayal of the human figure but rather in the abstract shapes of which it is composed. The result is a mannered, antinaturalistic and abstract art which in some ways can claim an affinity with art trends of today.

Yet if the style in general is European, the compositions of these illustrations often derive from Eastern sources. They can be traced back to the art of the Eastern empire of the Middle Ages, which was centred in Constantinople and known as Byzantium.

One may take, for example, the full-page illustration to the Book of Genesis, which is reproduced. In the upper panel of the picture there is portrayed the episode of Abraham meeting and entertaining the angels, and in the lower panel there is an illustration of Jacob's dream. At Palermo in Sicily there are mosaics showing the same scenes, and the compositions (though not the style) of the Canterbury manuscript paintings are clearly derived from these mosaics. These in their turn represent a Byzantine or Eastern rather than European or Western tradition.

It seems probable that these Byzantine influences were brought to England as a result of the second Crusade, which lasted from 1147 to 1149. This movement took Crusaders to the Holy Land and then brought them back to their native lands through Sicily at about the same time as the Lambeth Bible was being produced.

However, though the style of this manuscript derives

from Europe and the compositions from the East, the artist has none the less succeeded in producing a very characteristic English work. This he has achieved by his emphasis on linear design. Throughout his illustrations this unaffected delight in line and pattern for its own sake is everywhere apparent.

The fold of a cloak, the bend of a body, the fall of the hair: everything is made an excuse for an essay in linear design; every composition is interpreted in terms of animated line, which flows over the page in complicated arabesques of pattern. It is just this affection for linear design that is the dominant characteristic of all English art in the Middle Ages.

In fact, the paintings of the Lambeth Bible represent the complete absorption of the Romanesque style of Europe and the Byzantine compositions of the East to the English native tradition.



INITIAL CAPITAL LETTER E TO THE BOOK OF EZEKIEL

folio 6 is a full-page illustration to the opening of the book of Genesis. Several episodes described in Genesis are here illustrated in one composition of which the parts are really separate pictures. Top left, Abraham is meeting the angels; top right, Abraham sacrifices Isaac with the ram caught in the thicket; lower centre, Jacob is asleep, dreaming of the ascent of the angels to heaven, where God received them; extreme left, Jacob is anointing the stone on which he slept and dreamed his dream.

folio 6 versa is the opening initial to the book of Genesis—(or reverse) the initial I. This letter is made up of eight medallions depicting scenes of the Creation. At the top is God. Below on the first day the Spirit of God is portrayed as angels; the second day is the division of heaven and earth; the third day the creation of trees and vegetation; the fourth day the creation of sun and moon; the fifth day the creation of birds; the sixth day the creation of man; the seventh day God rested.



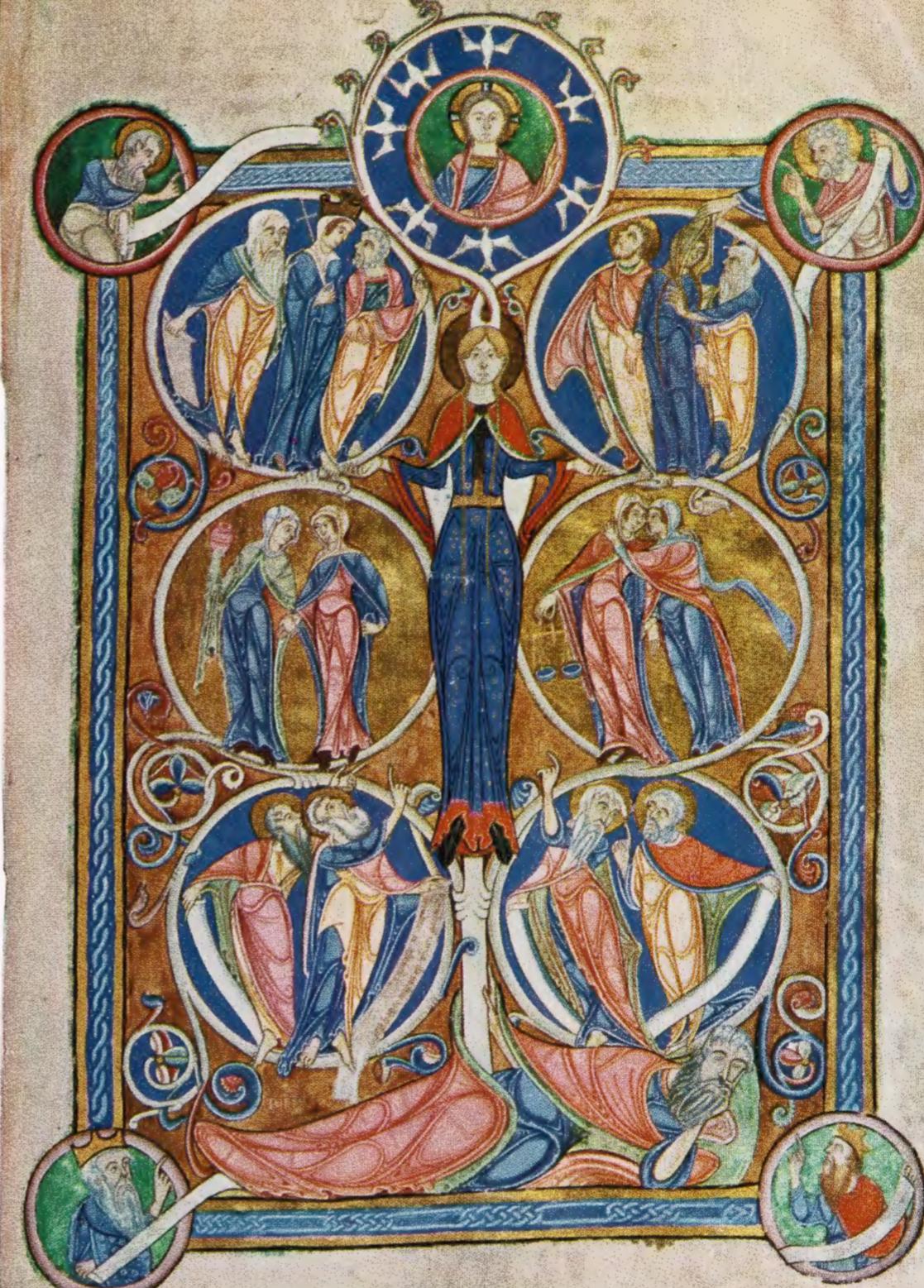
folio 6



et nō veniant deus arida terrā
 congregatio[n]esq; aquarū appellā
 ut maria. Et uidit d^s qd̄ esse
 bonum: & ait. Germineret terra her
 bam urentē: & faciente semen: &
 lignum pomiferum faciens fructū
 iuxta genus suum: cui semen inse
 mperio sit sup trā. Et factum ē.
 ita. Et pualit terra herbam urentē
 & afficerentem semen iuxta genū suū:
 lignumq; faciens fructū: & habens
 unum quodq; sementem sedim spe
 ciem suam. Et uidit d^s qd̄ esse bonū:
 factū ē. vespe: & mane dies trū.
Dixit autē d^s. Fiant lumi[n]i. 111
 maria infirmamento celi: & diu
 nitate diem & noctē: & ut insignia
 & immora: & dies. Cānos: & luce
 am: infirmamentoq; & illuminati
 trā: & factū ē. ita. Fecitq; d^s duo
 magna: illuminaria: luminare mai
 or ut p̄t̄ esset diei: & luminare min
 or ut p̄t̄ esset nocti. Et stellas. Et po
 sunt eis infirmamento celi: ut luce
 rent sup trā: & p̄t̄ ēre dii ac
 nocti. & diunderent lucem ac tene
 bras. Et uidit d^s qd̄ ēt̄ bonum: &
 factū ē. vespe: & mane dies qd̄.
Dixit etiam d^s. P̄ducat

aque reptile animālē inueniendū.
 & uolatile sup trā subfirmamento
 celi. Creauitq; d^s cetera grandia: & om
 nem animālē inueniē atq; notabilē.
 qm̄ p̄duxerant aque inspeties suas.
 & omne uolatile sedim genus suum.
 Et uidit d^s qd̄ ēt̄ bonum: bened
 ixitq; eis dicens. Crescite & multipli
 camini: & replete aquas maris. autq;
 multiplicentur sup terrā. Et fac
 tum ē. vespe: & mane: dies quīm.

Dixit quoq; d^s. P̄ducat trā
 animālē inueniē ingeneres suo.
 iumenta & reptilia & bestias trā:
 sedim species suas. Factumq; ē ita.
 Et fecit d^s bestias terrā iuxta spe
 cies suas & iumenta: & omne rep



HOLIDAY PHOTOGRAPHS



1 "INTO HAWES (Wensleydale)" *Submitted by W. H. WILSON
(Research Dept., General Chemicals)*

By the Editor

WHAT is a holiday photograph? The variety of the 225 prints submitted suggests a score of interpretations.

Is it one of the many taken during holidays because personal records are so much more to you than postcards? Or is it a picture which has captured the spirit of a holiday; which stirs the imagination; lets others in on the fun you had?

Most of the entries were pictures of places and things seen while on holiday. Some were excellent camera studies, fit to be hung in any photographic exhibition, but

too general in subject. They might have been taken at any time.

Few epitomised "holidays."

The holiday mood *can* be captured, even regenerated, by the camera. It may be elusive, but seven or eight competitors left no room for doubt that they could recognise it—and get it on to paper for all to enjoy! They made the final selection a simple problem. After a last check with names disclosed, so that no one might hog all of the prizes, three prints stood out clearly as the winners.



2

"SO FAR, SO GOOD"
*Submitted by
F. BARANYOVITZ
(Hawthorndale Laboratories)*



3 "I BEG YOUR PARDON?"
*Submitted by
A. B. WOOLLEY (Castner-Kellner)*

I.C.I. NEWS



CHOOSE THE I.C.I. TIE: PRIZE COMPETITION

Prizes to the value of £18 are to be won in a poll for the choice of an I.C.I. tie. The proposal for a Company tie was first voiced in the Editor's Postbag of the Magazine in August 1952 by Mr. H. H. Dunt of the Magadi Soda Company. Mr. J. Tierney of Plastics Division then championed the idea at his own Works Council. A Plastics Division resolution on the subject was finally adopted by Central Council in May this year.

WHAT should the I.C.I. tie look like? Should it be striped? If so, should the stripe be wide or narrow? Or would a design of I.C.I. lions or roundels look better? I.C.I. employees and pensioners have the chance of winning three prizes of £10, £5 and £3 by deciding which of the designs shown on the opposite page would be the most suitable for a tie which might be worn by 100,000 people.

The idea of having an I.C.I. tie was adopted by the Company after the Central Council had recommended it in May this year. The question of design was left open then, and it has now been decided that the best method of choosing the design is by giving everyone in I.C.I. an opportunity to express their opinions.

Details of the competition are given on the entry form enclosed with every copy of the Magazine. (Only one entry can be accepted from each person, but extra forms are available in works and offices for those who do not subscribe to the Magazine. I.C.I. employees and pensioners only are eligible.) The order of preference for all the designs must be entered on the form, which must reach Central Labour Department, London, not later than 31st December 1953. The forms will be carefully sorted, and the three competitors placing the eight ties in the order most closely approximating to the preference of the majority will receive the cash prizes mentioned. In the event of more than three entries qualifying for prizes, the first three opened will be considered the winners.

Some Points to Consider

The designs have been reduced in size for display on one page. On the actual tie the chosen design will be double the size in all respects, and competitors should bear this in mind when making their choice.

When Mr. J. Tierney of Plastics Division championed the

cause of the I.C.I. tie (first suggested at his own works council) at Central Council, he said that its main object would be to enable I.C.I. men to recognise a colleague wherever he might be. Competitors may think, therefore, that an important consideration in choosing the I.C.I. tie is that it should be easily recognisable. Some people may wish to restrict recognition of their membership of I.C.I. to other I.C.I. people, and on this ground may prefer one of the striped designs to those showing the I.C.I. lion or roundel. Others may wish to be recognised as I.C.I. men by the general public, and will therefore favour the lion or roundel designs. That is one point to consider when casting your vote.

Tie will be made in 'Terylene'

The tie will presumably be worn on both formal and informal occasions, and should therefore be suitable for either. Competitors will also need to take into account, when choosing the tie, the colour of clothing they usually wear.

What will I.C.I. Scots think of the lion design? Close study will show them that this lion is different from the Scottish one and is, in fact, exclusively an I.C.I. lion.

Another well-known I.C.I. trade mark—the roundel—suggested not only the plain roundel design but the wavy stripe designs, which are somewhat distinctive and unusual in that the "waves," as in the roundel, are of unequal widths.

The design which is placed highest in the lists of all the entries in the competition will be woven in 'Terylene' and will have all the properties that are looked for in a tie, including crease resistance and strength. It is expected to cost very much less than an all-silk tie and will be unsurpassed for quality, durability and value.

The chosen tie and the names of the three prizewinners will be announced in the February issue of the Magazine.

I.C.I. BOARD

Mr. Stephen France Burman, M.B.E., has been appointed a non-executive director of I.C.I.

Mr. Burman is managing director of Burman & Sons Ltd., Birmingham, Production Engineers, and a director of other companies. He is prominent in Birmingham business circles, being a past president of the Chamber of Commerce, a governor of the University of Birmingham, and vice-chairman of the Regional Board for Industry. He is especially well known for his work for the local hospitals when first chairman of the Board of Governors of the United Birmingham Hospitals.

Mr. Worboys Chairman of A.B.C.M.

Mr. W. J. Worboys, Commercial Director of I.C.I., has been elected chairman of the Council of British Chemical Manufacturers for the year 1953-4.

Mr. C. R. Prichard, Development Director, has been elected to the Council and Mr. E. M. Fraser, Sales Controller, co-opted to the Council.

Dr. Holroyd Honoured

Dr. H. Holroyd, Research Director of I.C.I., was presented with the Coal Science Medal of the British Coal Utilisation Research Association on 21st October.

Dr. Holroyd is a recognised authority on coal-oil research, and he was closely associated with the development of the Billingham Oil Works. He is a corporate member of the Institute of Fuel and served for three years on the Fuel Research Board of the Department of Scientific and Industrial Research.

ALKALI DIVISION

A Family Affair

When the s.s. *Hibernia* passed out of service with the Division a family tradition was broken. On this boat seven members of the Barker family have served at one time or another.

Mr. John Barker, who works in the Winnington Accountancy Department, is the son of Clifford Barker, who launched the *Hibernia* and was her first captain; John's uncle William was her first mate, and his brother Abraham was her first apprentice. Ronald, another brother of Mr. Barker, has served as mate and captain, and his nephew Thomas and son Derrick have both been mate. On the boat's last trip to her new owners was yet another Barker—young Peter, an apprentice. It is no wonder that the Barkers have grown to look upon the boat as one of the family.

The *Hibernia* herself has a record of long and faithful service. She was ordered in 1897 and was the first iron boat to be made for the Company. It is indeed a tribute to the craftsmen who made her that after all these years she is still to go on working with her new owners.

Planting for the Future

A three year tree-planting scheme was inaugurated last month when Mr. J. L. S. Steel, heavy chemicals group director on the I.C.I. Board, visited Winnington. In a circular bed just inside the main entrance of the Moss Farm extension site

he planted a golden oak—the first of 3000 trees that will be planted in the course of this and the next two winters.



Helped by John Cooksley from Winnington Vocational Training School, Mr. Steel plants an oak

Mr. Steel's oak commemorates the Coronation and marks the erection of the new stores, canteen and other buildings on the Moss Farm site. Much of the planting is to take place in the vicinity of the larger works of Winnington and Wallerscote and is intended to screen such features as the lime-beds and stocking grounds of all the Cheshire works of the Division. As the trees grow they should materially improve the appearance of the works and the amenities of the district in general.

A Dahlia Expert

At the National Dahlia Society's show in London this year the 12 Vase Section for the Pompon variety was won by Mr. E. Moore, a painter in Construction Works.

This achievement came as no surprise to the many keen gardeners in the mid-Cheshire area, for Mr. Moore is well known to them as an authority on dahlia-growing. His expert knowledge has been garnered over the twenty years or so that he has been specialising in dahlias—the Pompon variety in particular. With this variety he won the 6 Vase Section at the Southport show this year.

While most of his large garden is ablaze with dahlias, Mr. Moore does grow other flowers. At the Hartford Horticultural Society's show this year he won



Mr. E. Moore

the Tangye Cup for dahlias and sweet-peas for the third year in succession.

Mr. Moore finds great pleasure in exhibiting, despite the anxiety of transporting his blooms safely to the shows—he took 400 with him to London, each wrapped in cotton wool—and the work of arranging them that goes on all through the night before the judging.

His greatest ambition now is to raise a new variety of his own and to launch it on the market.

Finally, he gives a tip to any gardener who is battling with the problem of weeds: start growing dahlias, for weeds will not grow where there are dahlias. That is why he first started growing them!

Farewell Cocktail Party

A very cordial relationship has existed for many years between the Alkali Division and Solvay et Cie of Belgium, the largest alkali producers on the Continent and the Company from whom Dr. Ludwig Mond obtained his licence to work the ammonia-soda process in England in 1872.

The warmth of this tie was evidenced by the cocktail party given by the Export Sales Department in early October to mark the retirement of M. André Desoer, who on behalf of Solvay's has been closely associated with the Alkali Division on technical service matters since 1919. In recent years he has



M. Desoer (right) at his farewell party with Mr. D. G. Emerson

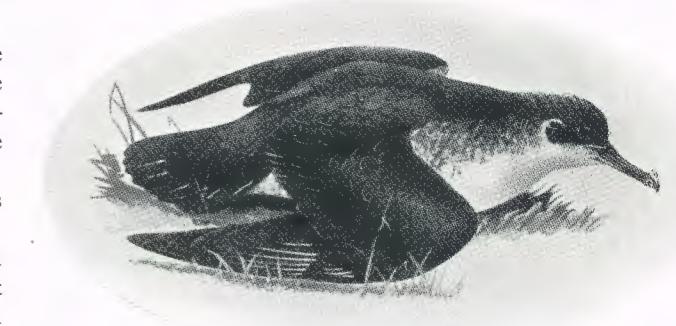
also been joint secretary of the I.C.I./Solvay Committee, first with Mr. E. J. Langford and then with Mr. D. G. Emerson, the manager of the Export Sales Department.

M. Desoer travelled from Solvay's headquarters in Brussels to attend the party held in his honour. Guests at the party also had the pleasure of welcoming M. Corin, who will be M. Desoer's successor.

An Unusual Visitor

Wallerscote Works recently found itself with a most unusual visitor on its doorstep. A chargehand, Mr. H. Littler, discovered the caller comfortably ensconced on a trolley near the laboratory. It was no less distinguished a personage than a Manx shearwater, a seabird of the puffin family, that had presumably been forced inland by a storm and had decided that Wallerscote Works was as good a refuge as any other.

Birds of this species spend the greater part of their lives on the sea, rarely coming down on land except in the breeding season. The species is partially migratory and is widely found



A Manx shearwater

in the north Atlantic, the Manx shearwater being the only type that breeds in Britain.

The bird may have had a stormy passage to Wallerscote but it travelled back to the sea in luxury, aboard the m.v. *Comberbach*. Indeed, it was only with difficulty that it was persuaded to "fly the plank" at Liverpool after enjoying such comfort. The egg found in the box after the passenger's departure was believed to be part of the crew's rations, but no one seemed able to confirm this.

BILLINGHAM DIVISION

Four Brothers share 100 Years' Service

Four brothers who have all worked in the Billingham factory as tradesmen have between them completed 100 years' service with the Company.

They are Jim Postle, who has been a blacksmith in the Engineering Works plumbers' shop for nearly 26 years, and his three younger brothers, John, Bob and Harry.

Now nearly 60, Jim started his career as a farrier in the army and on the Marquis of Londonderry's Wynyard Park estate. During the whole of his service he has been the only blacksmith in the plumbers' shop, where he has the job of making clips needed by the plumbers.

The second eldest of the quartet, John, is a maintenance foreman in Commercial Works, and it is twenty-five years since he first came to the factory. Since then he has been on construction work and in Products Works, and he also worked



Jim Postle, eldest of four brothers with a century of service

during the last war at Bishopton, at Heysham and in Scotland.

The next in age if not in length of service is 47-year-old Bob. He has had twenty-three years in the factory and for the past two years has been an estimator in the Workshops Work Study Section. He was a turner in machine shops before taking up his present job and was a chargehand from 1938 onwards.



The three younger Postle brothers, John, Harry and Bob

The only one of the four who started his working life with the Company, 41-year-old Harry, is also an estimator in Work Study Department, and he and Bob work from the same office.

He started as a 15-year-old messenger boy, and after a long period in the machine shop moved to Work Study Department five years ago.

Ancient Game still played by Blacksmiths

The blacksmiths' shop of the Engineering Works, normally a place of clamour and noise, becomes strangely quiet during the mid-day meal break. The ring of metal on metal can still be heard, but it comes from *outside* the shop, for this is where the smiths and their strikers enjoy a daily game of quoits.

Although disappointed by the decline in the popularity of this ancient game since the wartime days, when almost every shop in Workshops had its own pair of specially prepared clay "ends," the men of the blacksmiths' shop have maintained their interest throughout the years. Watched by men from nearby shops, a group of them can be seen on any fine day as they test their skill throwing the heavy iron rings over the 33 feet dividing the ends.

The game of quoits is claimed by some experts to be derived from discus-throwing, which was one of the five games of the



Billingham blacksmiths keep alive the ancient game of quoits

Greek pentathlon. In its present form it is believed to have originated in the borderland of England and Scotland.

There are references to it in the Midlands dating from the fifteenth century, and it was one of the games (another was football) prohibited in the reigns of Edward III and Richard II in favour of archery. Whatever its origins and whatever its fate elsewhere, the men of the blacksmiths' shop are determined that it shall not die out in the Billingham factory.

C.A.C.

Mr. John Procter

Everyone concerned with agriculture will learn with the deepest sorrow of the sudden death of Mr. John Procter, Recorder of Experiments at Jealott's Hill Research Station, on 8th October.

In 1926, when I.C.I. was turning its eyes towards agriculture, Mr. Procter was appointed by the first Lord Melchett (then Sir Alfred Mond) to undertake agricultural experiments at Melchett Court. He went to Jealott's Hill immediately the farm was purchased in 1927 as Recorder of Field Experiments and started on schemes of field trials which have supplied much valuable information and have helped to build up I.C.I. prestige in the agricultural field. The accuracy and precision of his work won the admiration of thousands of scientists and farmers all over the world.

He was much more than a first-class experimenter. He was a born teacher. He had a great gift for explaining scientific matters in everyday language and of imparting his very wide knowledge of farming in a kindly, common-sense way.

Mr. Procter was born in 1894 of a well-known Westmorland farming family at Old Hutton near Kendal. He won a scholarship to Armstrong College, Newcastle, where he obtained his degree in agriculture. He served in World War I and was very severely wounded. After the war he returned to his native hills, where he was vice-principal and farm manager of Newton Rigg Farm Institute for five years.

Just as he was deeply interested in farming and research he was equally interested in people, particularly the young. In a quiet, unassuming way he did a very great deal to help others. He will be sorely missed by many hundreds of his colleagues and by countless farmers and research workers the world over.

LEATHERCLOTH DIVISION

Hyde Bowler wins Waterloo Handicap

Competing against 1000 other bowlers, Mr. Bernard Kelly, a post room messenger at Hyde, won the Waterloo bowling handicap at Blackpool in October.

Mr. Kelly, although he is a Hyde man by birth, worked in Blackpool until two years ago, and he used his knowledge of his old club green to advantage. In the semi-finals he was competing against two other Cheshire bowlers, W. Dalton and Harry Taberner, and he beat the survivor, Taberner, 21-19 by sound and consistent bowling.



Mr. Bernard Kelly

Amateur Astronomer

Mr. H. Butterworth of the Engineering Section at Hyde has found the ideal way of relaxing after a day's work at the drawing board: he goes home and examines the moon and the major planets through a home-made telescope.

The telescope, which attracted much interest at a recent exhibition of the Manchester Astronomical Society, has taken Mr. Butterworth two years to build. The mirror and prism alone took fifty hours of spare time to grind and polish. Twice he laboriously ground the mirror to the right curve, only to find that the surface of the glass had acquired scratches that could not be eliminated by polishing, and had to start again.

The telescope is mounted on an old aeroplane tail runner—"for no better reason," says Mr. Butterworth, "than that I saw the tail runner on a junk heap and realised I could use it." The

telescope is mounted on an old aeroplane tail runner—"for no better reason," says Mr. Butterworth, "than that I saw the tail runner on a junk heap and realised I could use it." The



The telescope made by Mr. Butterworth for £25

tube is made of wood covered with 'Vynide.' The total cost of the instrument Mr. Butterworth estimates at about £25, which is a fraction of what it would cost to buy a telescope of the same power.

The telescope gives pleasant aspects of the moon and major planets, because these are sufficiently bright to yield an image which will bear the high magnification of 180. Manchester "smog" troubles Mr. Butterworth a great deal, and together with the normal quota of unsuitable weather makes viewing a haphazard business, with long spells of inactivity and sudden, unexpected clear periods.

METALS DIVISION

New Commercial Director

Mr. F. B. H. Villiers has recently taken up the appointment of Metals Division Commercial Director.

Mr. Villiers has been associated throughout his I.C.I.

career with the Company's sales organisation. He joined the Building Department at Imperial Chemical House in 1934 and subsequently became sales manager of that department. He spent the whole of the war period on active service, leaving the Army with the rank of Lieutenant-Colonel. Rejoining I.C.I. on demobilisation, he became Regional Sales Manager of Metals Department, Southern Region, in 1947 and deputy Regional Manager in 1952.

Mr. Villiers was awarded the O.B.E. in 1944.



Mr. F. B. H. Villiers

Girl Clerk becomes J.P.

Believed to be the youngest magistrate in the Midlands, Miss Joyce Collins, aged 27, has recently been appointed a Justice of the Peace for Smethwick (Staffs).

Miss Collins, who is a statistical clerk in the Work Study Department of Allen Everitt Works, has for some years devoted all her spare time to public duties. Co-opted to the town's Education Committee in 1949, she sits on the Board of Governors of a group of four secondary schools and on National Insurance appeals tribunals in addition to serving on various education sub-committees.

Miss Collins took the oath of allegiance as a J.P. on 20th October, but will attend a series of law lectures before taking up her duties on the Bench. She believes that young magistrates can make a special contribution to the work done in the courts, particularly when juvenile offenders are involved.



Miss Joyce Collins

NOBEL DIVISION

The Moderator visits Ardeer

During his visit to the Presbytery of Ardrossan, the Moderator of the General Assembly of the Church of Scotland, the Right Rev. J. Pitt-Watson, went to Ardeer.

The Moderator spent nearly five hours in the factory. He was received by Mr. L. Gale and Dr. A. C. Richardson, and later in the day Dr. W. J. Jenkins, the Division chairman, joined the party.

Dressed in the traditionally sombre yet splendid eighteenth-century garments of his historic office, the Moderator spoke to employees in the Detonator canteen. To them he brought greetings from the National Church of Scotland. He was, he said, the titular, although temporary, head of a great church, and it was well to remember that the history of the Church of Scotland was the history of Scotland itself, so closely did they



The Moderator sees electric fusehead assembly at Ardeer

influence each other. He felt at home in the factory just as much as in any other walk of life. This was as it should be, because the Christian religion was interested in the sum and substance of everyday life.

The Moderator visited various departments of the factory and at mid-day addressed another gathering in the Safety Fuse canteen. At Africa House he was welcomed by Dr. W. J. Jenkins and met the staff.

International Conference at Ardeer

On 21st September the fifteenth biennial technical conference of the safety fuse industry began in Ardeer Factory. The conference lasted for a fortnight, and discussions during the second week were held at St. Ives, Cornwall, near the Bickford Smith Factory at Tuckingmill where safety fuse was invented over 120 years ago.

This is the first time the conference has been held in Britain. It was attended by delegates from the safety fuse industry in Canada, U.S.A., Mexico and France. The British industry was represented by delegates from Nobel Division safety fuse interests at Ardeer and Tuckingmill.

At the opening session Dr. James Taylor, I.C.I. Director for Nobel and Metals Divisions, welcomed delegates and said he hoped that after the conference they would feel their long journeys had indeed been worth while.

During their stay delegates and their wives were guests of Nobel Division, and several excursions were held for the ladies while their husbands discussed technical matters. In Scotland and Cornwall coach tours took them to many points of historical interest and scenic beauty.

Nobel Division delegates to the conference were Mr. M. G. Bickford Smith (Tuckingmill), Dr. W. S. Dennler (Operating Department), Dr. J. C. Hornel (Manufacturing, Ardeer), and Messrs. D. G. Ashcroft, K. J. Brimley and Dr. Elwyn Jones (Research Department).

Duke takes another Prize

The pride of the stables at Bickford Smith Factory, Tuckingmill, is Duke, an eight-year-old grey shire working horse. This year he has taken four prizes at Cornish carnivals, the most recent being a special silver cup for condition and decoration and the R.S.P.C.A. medallion for the best-conditioned

animal at the Carnkie Carnival. He also won prizes for condition and decoration in 1950 and 1952.

Apart from his natural good looks, Duke owes his prize-winning appearance to his driver, Mr. Lancelot Roskilly, who spends many hours combing and grooming and fixing brasses and ribbons to his charge. In working hours Duke delivers raw materials from the mills and stores to the danger rooms and other departments. Being an intelligent animal he has learned all the points of the daily routine, which he now accomplishes without much help from Mr. Roskilly.

Other horses from the Tuckingmill stables to win prizes at the Carnkie Carnival were Trooper, a seven-year-old black



Tuckingmill's prize horse with driver Mr. Lancelot Roskilly

gelding, and Polly, which was entered in the horse-drawn vehicle class. Trooper was groomed by Mr. John Doble, Polly by his brother Bill. The man responsible for the general supervision of the six horses in the Tuckingmill stables is Mr. Leonard Philpotts, who has been at the Bickford Smith factory for 27 years.

Monster Spud

This is in every way a majestic potato. Even Mr. E. Phillips, a stockchecker in Sabellite Factory who has been a gardening enthusiast for thirty years, has never seen its like. It is by far the largest potato ever to come from one of his allotments, and as well as having monstrous proportions it is by way of being a monster in appearance.

When unearthed the potato weighed quite $3\frac{1}{2}$ lb. It is, of course, a potato and does not bark or bite or do any of the things that such an odd shape might suggest. It has been a popular, although not a prize-winning, exhibit at many local vegetable shows. To preserve it for posterity it has now been



varnished and is displayed in the Shoulder of Mutton Inn, Easington Village.

PLASTICS DIVISION

Tensing in 'Perspex'



This head of Tensing in 'Perspex,' which was on view at the Imperial Institute Galleries last month, is the work of Mrs. Delmar Banner (Josephina de Vasconcellos), F.R.B.S.

Mrs. Banner, although primarily a sculptress in stone, has used 'Perspex' successfully in several works. In 1948 she used it for a carved episcopal crozier for the Bishop of Bristol, and her font cover in 'Perspex' for St. Aidan's Church, Blackburn, has recently been dedicated.

SALT DIVISION

Hedgehoggery

When Mr. Jack Merrell, a bagger and loader at Stoke Works, returns home late from work, his first job is to put out a saucer of milk for Jimmy.

Jimmy is not the name of the Merrell's cat. They have no cats. But they like them, and have always put out a saucer of milk for their neighbours' cats to lap. One night Mr. Merrell heard an unusual lapping and went out with a torch to investigate.

The light revealed a hedgehog, and instead of driving it off or getting a dog to harry it, Mr. Merrell made friends with the visitor. After that the hedgehog waited every night in the shadows for his meal, and the rattle of saucer on bricks brought him trotting forward.

One night Mr. Merrell put out the milk as usual and waited for Jimmy to appear. There seemed to be more noise than usual, so he switched on the torch. To his amazement he saw no fewer than six baby hedgehogs trooping behind Jimmy. To his wife he shouted "Missis, you'd better come down! There's some renaming to be done. Our Jimmy's turned out to be a Jenny!"

Actually Mr. Merrell is not too sure how to tell a Jimmy from a Jenny where hedgehogs are concerned, and he is still not convinced that Jimmy is a Jenny. As far as names go, he remains Jimmy.

I.C.I.A.N.Z.

New Directors

Dr. Alexander Fleck and Mr. A. J. Quig have become members of the board of I.C.I. of Australia and New Zealand, and Mr. J. L. S. Steel has resigned from it. In addition to these changes in the I.C.I. Board representation there have been two other directors appointed: Dr. J. Clark, who is head of I.C.I. Australasian Department and will remain in London, and Mr. J. R. A. Glenn, formerly General Manager Technical and now Assistant Managing Director in Melbourne.

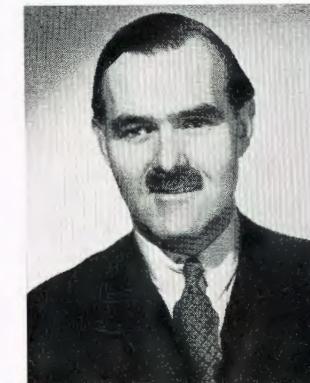
Dr. John Clark was educated at Dollar Academy and St. Andrews University, where he obtained the degrees of B.Sc. with first-class honours and Ph.D. He joined Nobel Division at Ardeer in 1934 in the Research Department. He became an expert in nitro-glycerine manufacture: to a layman dangerous enough, but for him chiefly memorable for some days of a mission to Nazi territory just before the war to investigate the Schmidt process. From 1941 until the end of the war he was in the Operating Department, supervising Nobel Division's outside factories. He moved to Head Office in London in 1945 as technical assistant in the Australasian Department. He deputised for Mr. Bernard Foster soon afterwards during the latter's visit to Australia and New Zealand. In 1950 he succeeded Mr. Foster as head of the department.

As befits a St. Andrews man, he plays golf with the utmost steadiness and regularity. On and off the golf course he has a wide circle of friends in Scotland, London and in the Antipodes.

Mr. J. R. A. Glenn has made several visits to this country since the war and between 1945 and 1947 moved his home to



Dr. John Clark



Mr. J. R. A. Glenn

I.C.I. (INDIA)

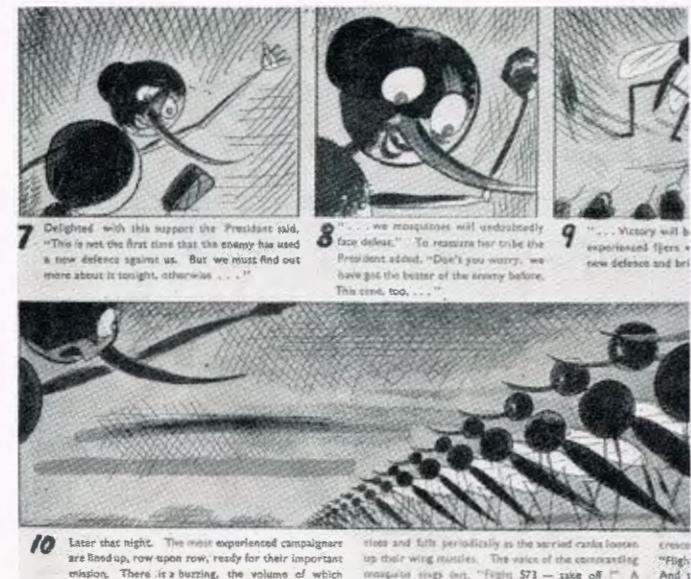
Consternation in Anopheles City

"Last night only 50,000 of our fliers achieved their object—over 80,000 failed in their mission."

The speaker is the female president of Anopheles City, whose despairing efforts to rally her flights of malarial mosquitoes in the face of terrible odds are depicted in a children's newspaper published by I.C.I. (India).

The newspaper is given to schoolchildren to educate them in antimalaria precautions. In the first issue pictures show the consternation caused in Anopheles City by the failure of

striking forces night after night. In desperation the president leads a special force of experienced fliers to a house where the inhabitants' blood has a strange taste. They discover a packet labelled 'Paludrine,' which is borne home to be examined by the mosquitoes' technical expert.



Pictures from Fun and Frolic, I.C.I. (India)'s paper for children

As the expert takes the packet to his laboratory the president announces: "There's no need to worry. By dusk tomorrow we shall be able to carry on our work as before." Loud cheers greet this encouraging news and many young mosquitoes begin dancing in the streets.

Hours later, grey with fatigue, the expert still scribbles on a piece of paper. The door is locked, and frequently messengers are sent from the president to enquire what progress is being made. At last they get no answer, and the president orders the door to be broken down.

Amidst the wreckage of his laboratory the body of the expert hangs limply, swaying. On his desk lies a message: "I have failed—there is no way to beat 'Paludrine'."

* * *

OUR NEXT ISSUE

Outstanding in our January issue are some magnificent colour pictures of the foothills of the Himalayas taken by Robin Goodfellow of India Department, who, as secretary of the Himalayan Committee in London, was responsible for much of the preparatory work for the Everest expedition. Robin Goodfellow's pictures give a real feeling of the grandeur of this part of the world, and the article which accompanies them describes an expedition into Nepal.

Our lead is by Dr. Maurice Cook, managing director of Metals Division. He writes about the new metal titanium which I.C.I. are to manufacture for the Ministry of Supply. The future of this metal is one of the great question-marks of the decade. It is most expensive to make and only price prevents its wider application, since the ores are cheap and abundant. Titanium has reached its present stage of development because of the demands of the aircraft industry. It

combines great strength with great lightness, and is as non-corrosive as stainless steel.

Next, Mr. Gordon Nonhebel, I.C.I.'s fuel economy expert, gives some valuable hints on that almost insoluble problem, how to have a warm house in an English winter without expensive central heating.

Finally, Mr. W. S. Bristowe, staff controller, writes on Sherlock Holmes—a subject in which he is an acknowledged authority. His article argues that Holmes, if he were alive, would be 100 this year. It is illustrated by reproductions of drawings done for Conan Doyle's articles when they first appeared in the *Strand Magazine*.

HOLIDAY ARTICLES

The response to our holiday article competition was twenty-seven entries in the Holidays Abroad section and seventeen in the Holidays at Home section. Without exception all the articles had some worthwhile experience to record, but the defect of most of them was that they were too much a chronicle of places visited and things seen. But surely a holiday is more than this? It is essentially the people met while in different surroundings, or, if the writing is subjective, then your own reaction or your children's reaction to these new surroundings. Otherwise no description of a holiday, except perhaps in the hands of a very gifted travel writer, can come to life.

The two winning articles both have what journalists call "the human interest angle." The winner of the Holidays at Home section is William Russell, a fitter in the Post-War Construction department of the Dyestuffs Division Grangemouth Factory. Under the title of "Fourteen Days Hard" he introduces the reader to the life of the miners in the coastal town of Buckhaven in Fifeshire, Scotland. Buckhaven was once a fishing village and the miners still have the mariner instinct in their veins. Their spare time is spent fishing and the author describes his experiences with them.

The winner of the Holidays Abroad section is Miss Elizabeth Carter, who works in the Accounts Department at Wilton Works. She took her holiday at San Sebastian in Spain and had no inhibitions about just settling down to enjoy herself and ignoring the rigours of sightseeing or mind-improving. Her article gives a simple account of the fun she had meeting the Spaniards and noticing and laughing at their differences from us British.

If you want to learn about the beauties of Spain, do not bother to read Elizabeth Carter's article. But if you are interested to know how one girl enjoyed herself abroad, then you will be amused.

The winning articles will be published in February and March.—Editor.

ANSWERS TO QUIZ ON PAGE 364

- A. (1) Queen Salote of Tonga, (2) Samuel Johnson, (3) Mr. Francis Bacon, (4) Mrs. Alfred Kinsey, (5) R. L. Stevenson.
- B. (1) Sir Pelham Warner, (2) W. S. Morrison, Speaker of the House of Commons, (3) H. D. G. Leveson-Gower, (4) Field-Marshal Lord Wilson, (5) Oscar Wilde, (6) G. D. Roberts, Q.C., (7) Clemenceau, (8) Lord Beaverbrook.
- C. (1) Character created by Damon Runyon, (2) character in *Uncle Remus* stories by J. C. Harris, (3) a Beatrix Potter character, (4) English travel writer, d. 1903, (5) famous Sioux Indian chief of the American civil war period, (6) winner of the Derby, 2000 guineas and St. Leger in 1899.
- D. (1) Cromarty, (2) Troilus, (3) Debenham, (4) Charybdis, (5) Schine, (6) the Man, (7) Sense, (8) Flanagan, (9) Hanbury.

The KICK

By S. Thomas (Metals Division)

Illustrated by A. R. Whitear

THE team had reached the final for the league championship shield for the first time in their history. On this, the big day of the match, electric excitement was in the air of their dressing room.

Dai the trainer had worked hard for this moment—and he hoped for the best. The team, however, was calmer than Dai had expected, which helped to tone down his own nervousness as he worked on one of the youngest players.

"Nervous, boyo?" Dai asked.

"Just a bit, Dai," the boy admitted.

"Aye, I suppose you are, boyo. Your first big match—only natural." The trainer rubbed away at the boy's leg a moment longer in silence. "Now remember, Willie, your dad will be out there on the touchline, and if you kick as good as he did in his time, then that's all I ask." With a final rub Dai let the boy go.

"Yes, Dai, I'll do my best," the boy promised.

"They're a hefty lot, those Cwmbran chaps, Willie," Dai went on, "and they're out to take that shield back to the hole in the hills where they come from. You'll have to stop 'em, see?"

"Yes, Dai." The lad looked as if he was ready to promise the trainer the earth.

"That's all I ask," Dai said softly. "There, tha's all right; I done my best for you, an' no man can do more." He turned and looked around the room. In his eyes there lurked a gleam of proud approval as his glance took in each player individually. Standing there idle for a moment, his eyes taking in the animated scene, Dai probably felt what he certainly looked, far more worried than any of his brawny charges, over whom he fussed like a mother hen.

"Stop worrying, Dai, for goodness' sake!" one player shouted. "We're all right. You'll have the shield to polish up tonight an' take to bed with you if you want to—you wait and see!"

"All right, we'll see; we'll see," Dai smiled. Although the tone of his voice sounded irascible, there was hope in it also. "In fact, we'd better see."

The club secretary hurried into the room. "All right, chaps," he called; "time to go. C'mon, an' the best of luck!"

* * *

The two men stood on the staging, as the wide floor abutting the great steelmaking furnaces was called. It extended along the whole length of the main building of the steelworks. High above their heads was the steel-girdered runway of the massive but mobile machine called the charger that feeds the furnaces in the process of steel-making.

A few feet to the rear of where the men stood, and flanking the stage for its whole length and beyond to where it vanished into the works sidings, was a sunken railway. This railway supplied the stage with scrap and other material, the wagons being discharged by the charger, which hung from overhead bogies. A long loading arm in front could swing completely round on its central axis. The machine moved along the overhead runway attending to any furnace in the battery.

"Well, Tom," one of the men shouted above the noise, "that last kick of your Willie's sure won us the shield this afternoon. He's a bloody natural for a cap some day, you mark my words!"

"Aye, Willie's a good boy," Tom nodded slowly. "Hell of a long way to go for his cap, though."

"He's a natural, I tell you, and . . ." Robert broke off short as another voice chimed in. "Hello, dad! Hallo Robert!"

Turning, the two men looked at the smiling youngster who had come up to where they were standing. "The gaffer'll be after you for being up here on the stage," Tom frowned at his son. "You know very well it's against the ruddy rules."

"Oh, leave the boy alone, Tom. He's doin' no harm." Tom smiled at the boy. "Thanks for the shield, son. It was that last kick of yours done it, too." The lad looked pleased.

Nodding abruptly to Tom and indicating their furnace, Robert adjusted his steelman's blue-tinted glasses over his eyes as a protection against the fierce glare of the opened furnace and crossed over to the mechanism that raised or lowered the great furnace door. After it was raised all three, Willie with his father's glasses over his own eyes, stood and stared at the molten lava of steel which seethed and bubbled inside the furnace's fiery maw.

Nodding as if satisfied with the inspection, Tom looked up and shouted "Look out the charger, Willie, the ol' girl's goin' to have some rations now!"

The three stood aside while their furnace was being charged. The powerful, electrically driven machine thrust its loaded arm into the furnace, tipped its load of scrap metal, reversed, and then whirred noisily away for another load.

Robert stared at the seething mass for a moment longer, then, satisfied with the result, turned aside and lowered the furnace door, cutting off the tremendous heat and glare as with a knife. Wiping his sweaty face with his sweat towel and crossing over to where the other two had stood away from the heat, he glanced casually upstage and then jumped, for bearing directly down upon them again, with its great arm aswing, was the charger—with, apparently, no one at the controls.

Springing forward, Robert screamed a warning at the other two, who were oblivious of the danger. "Look out, boys—look out! The charger's run wild! Oh, look out!"

Turning swiftly, father and son saw the danger, and scattered for safety. Rushing towards the sunken railway at the edge of the staging, Willie saw with awful clarity that the protruding edge of the charger cabin would mangle him before he could reach safety. At that moment he felt a terrific kick behind that landed him a dazed heap on the tracks of the railway, his fall coinciding with the horrific crash of the charger reaching the end of its runway, the crashing impact sounding like the end of the world.

Struggling shakily to a sitting position after a moment Willie looked around dazedly, then clambered painfully to his feet. "Dad! Dad!" His voice rose to a scream, and his body trembled with shock and fear. "Dad, where are you?"

He felt an arm on his shoulder. "They're all right,

Willie," he heard a voice behind him say soothingly. "Don't worry, lad, they're safe. Are you all right?"

Turning, Willie reassured the men who had quickly rushed to his aid from all parts of the works. "I'm all right; but my father and Robert, where . . ."

He was answered by his father, who had rushed up with Robert at that moment, both looking shaken and frightened. "We're all right, Willie," Tom placed his arms round his son. "Thanks be to God that you're safe too."

"I'm all right except for one place." Willie rubbed his sore back as his father stepped back.

"Aye, I 'spect it is a bit sore, lad," Robert said with a relieved smile. "Your father never did anything on the football field better than when he 'placed' you to safety with that kick."

"So that's what it was, eh?" They all smiled at the question.

"Yes," Robert replied more soberly. "Your kick won us the shield this afternoon, Willie, but your dad deserves a bigger one for that kick that saved your life just now."

The men nodded as they watched Willie hobble away between his father and Robert.



. . . a terrific kick behind landed him dazed but safe . . .



Canterbury Gateway

Photo by the Mustograph Agency

THE I.C.I. TIE

SERIAL NO.
(for office use only)

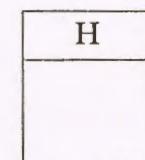
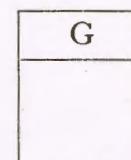
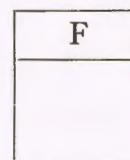
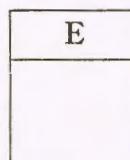
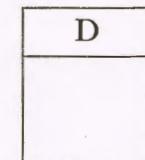
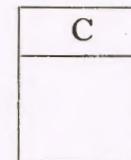
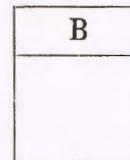
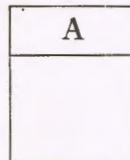
— which shall we wear ?

YOU ARE INVITED
to place the eight tie designs
shown in the *Magazine* in the
order of your choice.

The designs are lettered in
the coloured illustration and
the corresponding letters A-H
appear in the squares 

Put 1 under the letter of your
first choice, 2 under your second
choice, and so on down to 8.

Then fill in your name and
the other details requested.



NAME AND INITIALS (BLOCK CAPITALS)

WORKS NO. OR DEPT.

WORKS, OFFICE OR SALES DEPOT

If you are a pensioner,
give your address here

CONDITIONS

- 1 All I.C.I. employees and Company pensioners in Great Britain and Northern Ireland may compete, but no one is allowed to submit more than one entry.
- 2 Your entry will be disqualified if you do not fill in all the eight squares.
- 3 Your entry must be received in Central Labour Department by 31st December 1953.
- 4 Proof of posting cannot be accepted as proof of delivery.
- 5 Prizes of £10, £5 and £3 will be awarded to the three competitors whose entries are nearest to the preference expressed by the majority. In the event of more than three entries being equal, the first three opened will be chosen.
- 6 The decision of Central Labour Department on all matters relating to this competition is final.

FOLD THIS FORM
AS SHOWN OVERLEAF AND
POST IT THROUGH
THE I.C.I. INTERNAL POST
SYSTEM
NO STAMP IS NEEDED

Pensioners can use the I.C.I. post system by taking their entry to the nearest works or if preferred can send it through the post in the ordinary way with a 1½d. stamp.

.....THIRD FOLD HERE AND TUCK IN.....

.....FIRST FOLD HERE.....

CENTRAL LABOUR DEPARTMENT

IMPERIAL CHEMICAL HOUSE

MILLBANK

LONDON, S.W.1

.....SECOND FOLD HERE.....